INFORMATION SCIENCES

An International Journal

Volumes 32, 33, 34, 1984

NORTH-HOLLAND

INFORMATION SCIENCES

Editor: King-Sun Fu

School of Electrical Engineering
Purdue University,
West Lafayette, IN 47907

Associate Editors:

Professor M. A. Aizerman
Institute of Control Sciences
USSR Academy of Sciences
65, Profsoyuznaya
Moscow, B-279, 117806, USSR

Professor Richard Bellman
Department of Electrical Engineering
University of Southern California
Los Angeles, CA 90007

Professor Peter Chen
GM 16
School of Management
University of California, Los Angeles
Los Angeles, CA 90024

Professor Y. T. Chien
Division of Mathematics
and Computer Science
Computer Science Section
National Science Foundation
1800 G Street NW
Washington, DC 20550

Professor Thomas Kailath
Stanford Electronic Laboratory
Stanford University
Stanford, CA 94305

Professor Robert Kalaba
Department of Electrical Engineering
University of Southern California
Los Angeles, CA 90007

Professor Laveen Kanal
Computer Science Center
University of Maryland
College Park, MD 20742

Professor Teuvo Kohonen
Helsinki University of Technology
Department of Technical Physics
SF-02150 Otaniemi
Helsinki, Finland

Professor Tosiyasu L. Kunii
Department of Information Science
Faculty of Science
University of Tokyo
7-3-1 Hongo Bunkyo-ku
Tokyo 113, Japan

Professor C.V. Ramamoorthy
Dept. of Elect. Engr.
and Computer Science
Computer Division
University of California
Berkeley, CA 94720

Professor John R. Rice
Mathematical Sciences Bldg.
Room 442
Purdue University
West Lafayette, IN 47907

Dr. Azriel Rosenfeld
Computer Science Center
University of Maryland
College Park, MD 20742

Professor Stanley Y. W. Su
Research and Development Center
Computer and Information Science Dept.
512 Weil Hall
University of Florida
Gainesville, FL 32611

Professor Kokichi Tanaka
Faculty of Engineering Science
Osaka University
Toyonaka, Osaka, Japan

Dr. S. S. Yau
Dept. of Electrical Engineering
and Computer Science
Northwestern University
Evanston, IL 60201

Professor L.A. Zadeh
Department of Electrical Engineering
and Computer Science
University of California
Berkeley, CA 94720

Founding Editor:

John M. Richardson

INFORMATION SCIENCES

An International Journal

Volume 32

RONALD R. YAGER (New Rochelle, NY)
Probabilities from Fuzzy Observations 1

RICHARD E. COBB, JAMES P. FRY AND TOBY J. TEOREY (Ann Arbor, MI)
The Database Designer's Workbench 33

VAL DONALDSON AND LOIS WRIGHT HAWKES (Tallahassee, Fl)
Cyclic Multiple-Valued Filing Schemes for Higher-Order Queries 47

Q. Y. SHI (Beijing, China)
Semantic–Syntax–Directed Translation and Its Application to Image Processing 75

THEOCHARIS AND V. PETRIDIS (Thessaloniki, Greece)
Comparison of Three Nonlinear Filtering Schemes 91

. LOIZOU (London, United Kingdom)
Certain NP-Complete Matching Problems 117

AKAHIRO HAGA AND TERUO FUKUMURA (Nagoya-shi, Japan)
The p-Valued-Input, q-Valued-Output Threshold Logic and its Application to the Synthesis of p-Valued Logical Networks 123

SEF PETER HEGER (Wiesbaden, West Germany), JUERGEN HEINZ
armstadt, West Germany), WILLI KUNZ (Wiesbaden, West
rmany), PETER OCHSENSCHLAEGER (Darmstadt, West Germany),
RGEN WATZKE (Taunusstein, West Germany), AND HELMUT WEBER
rmstadt, West Germany)
nference of Deterministic One-Counter Languages 139

C. C. Chang (Taichung, Republic of China)
An Ordered Minimal Perfect Hashing Scheme Based upon Euler's Theorem 165

C. Y. Tang and R. C. T. Lee (Hsinchu, Republic of China)
Optimal Speeding Up of Parallel Algorithms Based upon the Divide-and-Conquer Strategy 173

J. C. A. Van der Lubbe (Amsterdam, The Netherlands), Y. Boxma and D. E. Boekee (Delft, The Netherlands)
A Generalized Class of Certainty and Information Measures 187

Gordon Stuber, Jon W. Mark, and Ian F. Blake (Ontario, Canada)
Sequence Acquisition Using Bit Estimation Techniques 217

Zhang Guo-Qiang (Peking, China)
"NP = P?" and Restricted Partitions 231

Michèle Basseville (Rennes Cédex, France)
Comments on "Sequential Segmentation of Nonstationary Digital Signals Using Spectral Analysis 243

Volume 33

SPECIAL ISSUE: AUTOMATIC SPEECH RECOGNITION

Renato De Mori (Quebec, Canada)
Editorial 1

Teuvo Kohonen, Heikki Rittinen, Erkki Reuhkala, and Seppo Haltsonen (Espoo, Finland)
On-Line Recognition of Spoken Words from a Large Vocabulary 3

Kiyoshi Maenobu, Yasuo Ariki, and Toshiyuki Sakai (Kyoto, Japan)
Speaker-Independent Word Recognition in Connected Speech on the Basis of Phoneme Recognition 3

Sei-Ichi Nakagawa (Toyohashi, Japan)
Connected Spoken Word Recognition Algorithms by Constant Time Delay DP, $O(n)$ DP and Augmented Continuous DP Matching 6

H. NIEMANN, A. BRIETZMANN, H.-W. HEIN, R. MÜHLFELD, P. REGEL, AND G. SCHUKAT (Erlangen, Federal Republic of Germany)
A System for Understanding Continuous German Speech 87

RENATO DE MORI (Quebec, Canada), ATTILIO GIORDANA, PIETRO LAFACE AND LORENZA SAITTA (Torino, Italy)
An Expert System for Mapping Acoustic Cues into Phonetic Features 115

THOMAS OTTMANN (Karlsruhe, West Germany), ELJAS SOISALON-SOININEN (Helsinki, Finland), AND DERICK WOOD (Ontario, Canada).
On the Definition and Computation of Rectilinear Convex Hulls 157

PRABIR BHATTACHARYA (Delhi, India)
On a Class of Abelian Codes 173

LOREDANA BIACINO AND GIANGIACOMO GERLA (Napoli, Italy)
Closure Systems and *L*-Subalgebras 181

RUDOLF KRUSE (Braunschweig, West Germany)
Statistical Estimation with Linguistic Data 197

AKASHI TOKOMORI (Shizuoka, Japan) AND DERICK WOOD Ontario, Canada)
An Inverse Homomorphic Characterization of Full Principal AFL 209

. C. TANEJA AND R. K. TUTEJA (Rohtak, India)
Characterization of a Quantitative-Qualitative Measure of Relative Information 217

. C. TANEJA (Amritsar, India)
On the Quantitative-Qualitative Measure of Relative Information 223

lume 34

EI-CHUNG LIN AND KING-SUN FU (West Lafayette, IN)
3D-Plex Grammars 1

SARGUR N. SRIHARI (Amherst, NY)
Pyramid Representations for Solids 25

MARCO VALTORTA (Durham, NC)
A Result on the Computational Complexity of Heuristic Estimates for the A^* Algorithm 47

KARL GOSER, CARSTEN FOELSTER, AND ULRICH RUECKERT (Hagen, West Germany)
Intelligent Memories in VLSI 61

SPECIAL ISSUE: FUZZY INFORMATION PROCESSING

RICHARD M. TONG AND PIERO P. BONISSONE (Mountain View, CA)
Editorial: Fuzzy Information Processing 83

ANCA L. RALESCU AND DAN A. RALESCU (Cincinnati, OH)
Probability and Fuzziness 85

I. R. GOODMAN (San Diego, CA)
Some New Results Concerning Random Sets and Fuzzy Sets 93

HENRI PRADE AND CLAUDETTE TESTEMALE (Toulouse Cedex, France)
Generalizing Database Relational Algebra for the Treatment of Incomplete or Uncertain Information and Vague Queries 115

BILLY P. BUCKLES (Arlington, TX) AND FREDERICK E. PETRY (New Orleans, LA)
Extending the Fuzzy Database with Fuzzy Numbers 145

JANUSZ KACPRZYK AND RONALD R. YAGER (New Rochelle, NY)
"Softer" Optimization and Control Models via Fuzzy Linguistic Quantifiers . . . . . 15[illegible]

ANTONIO DI NOLA AND ALDO G. S. VENTRE (Napoli, Italy)
A Relativization of the Concept of Synthesis in Fuzzy Set Theory 179

MARC ROUBENS (Mons, Belgium) AND PHILIPPE VINCKE (Brussels, Belgium)
On Families of Semiorders and Interval Orders Imbedded in a Valued Structure of Preference: A Survey 187

C. C. CHANG (Taichung, Republic of China)
Optimal Information Retrieval When Queries Are Not Random 199

N. P. MUKHERJEE (New Delhi, India) AND
PRABIR BHATTACHARYA (Delhi, India)
Fuzzy Normal Subgroups and Fuzzy Cosets 225

ANTONIO DI NOLA (Napoli, Italy), WITOLD PEDRYCZ
(Pstrowskiego, Poland) AND SALVATORE SESSA (Napoli, Italy)
Some Theoretical Aspects of Fuzzy-Relation Equations
Describing Fuzzy Systems 241

HUNG T. NGUYEN (Las Cruces, NM)
On Modeling of Linguistic Information Using Random Sets 265

AUTHOR INDEX 275

TITLE INDEX 279